An International Comparison Study on Low Carbon Investment and Financing Mechanism

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Abstract

Developed countries have started the development of carbon economy earlier. At present, it has formed a diversified investment, and financing pattern for low carbon economy, which is dominated by government finance and supported by credit institutions, including the capital market financing and carbon emissions trading. By learning from the low-carbon investment and financing experiences of developed countries, China can create domestic demands for carbon commodities and stimulate the supply of low carbon funds by institutional design, establish the government-led diversified investment and financing mechanism, and develop and improve the carbon market mechanism to alleviate the capital pressure for the development of China's low carbon economy.

Keywords: Low carbon economy, Investment and financing, Carbon finance, Carbon market, Carbon market linkage

Climate change which has been brought by carbon dioxide emissions has caused the world economy huge losses, so developing low carbon economy is becoming an international concerning issue. Many developed countries have started the development of carbon economy in recent years.(Wang, 2010) At present, these developed countries have formed a diversified investment, and financing pattern for low carbon economy. China is also a big country of carbon-emissions. With the increase of international pressure to reduce emissions, China may also will gradually take internationally binding emission reduction obligations.(Zhang, 2013)So China should learn experiences from developed countries on the low-carbon investment and financing so as to make a rapid progress on low carbon economy.

1. The main pattern for developed countries' low-carbon investment and financing

Europe, America, Japan, and other developed countries have started the development of carbon economy earlier and formed a diversified investment and financing pattern for low carbon economy now, which is dominated by government finance and supported by credit institutions, including the capital market financing and carbon emissions trading.

1.1 The government-led public fiscal investment and financing

Government is one of major providers of funds for low carbon economy. It guides the capital investments in low carbon enterprises and low carbon projects by legislative protection, fiscal inputs, and taxation incentives. From the government's budget management point of view, Europe, America, Japan, and other developed countries have established relatively complete legal framework in the development of low carbon economy. These related codes and agreements that focus on dealing with changes of climate and developing low carbon economy definitely regulate the budget arrangement of government's low carbon investment and financing. From the way of supplying funds point of view, government provides financial support for low carbon enterprises in a direct or indirect way. The direct supply of funds means the government directly uses fiscal income to support the development of low economy. For example, the government uses the fiscal funds to purchase the stocks, equities, and other financial assets of low carbon enterprises. These fiscal funds will become the direct funds for low carbon enterprises performing low carbon activities. The indirect supply of funds means the government changes the cost-yield curve of low carbon enterprise by carbon taxes, carbon subsidies, and transfer payments, creating favorable conditions for the production of low carbon products, and the popularization and the R&D of low carbon technologies.

1.2 Banks and other financial institutions' green credit for low carbon investment and financing

On the basis of the government-led fiscal investment and financing mechanism, by means of adopting the finance discount and other incentive policies, developed countries encourage banks and other credit institutions to actively participate in the low carbon economy, and guide banks and other financial institutions to provide green credits for enterprises and projects concerning the exploration of new energies, the decrease of carbon emission, and the development of low carbon technologies, especially provide low-interest loans and unsecured loans for some important projects that focus on saving energies and reducing environmental pollutions.

In order to fulfill the social responsibilities and response to the call of government, banks and other financial institutions have started to promote the green financial activities, combining the loans and relevant asset projects with energy-saving, emission-reducing, and environment protection. It is worth emphasizing that, in the field of using green credit to encourage energy-saving and emission-reducing, the "Equator Principles" (EPs) is very representative. Currently, more than 60 large international commercial banks follow the "Equator Principles". They strictly ask the borrowing enterprises to fulfill the environmental and social responsibilities.

1.3 The carbon stocks, carbon funds, and other investment and financing in capital market

By designing diversified financial tools and creative securities products, Europe, America, Japan, and other developed countries make sure that the development of low carbon economy has continuous financial support from the capital market.

Because of the guiding effect of the state's preferential policies for low carbon industries and the high profits of low carbon projects, low carbon enterprises have become the most popular choices on the capital market, which leads to the birth of a new segment of the capital market in developed countries, i.e. the low carbon industry segment. According to a research report of HSBC, the total revenue of all listed companies in the global climate change industry reached $ 534 billion in 2008, while the revenue of the defense industry and the aerospace industry was $ 530 billion.(Sun, Guo, 2009)The low carbon industry has become the rapidly emerging investment field on the capital market of developed countries.

1.4 The investment and financing by carbon trading and carbon derivatives

The "United Nations Framework Convention on Climate Change" and the "Kyoto Protocol" have established the legal basis and market rules for global trading of carbon emission permits. With the fast expansion of the global carbon trading market, the carbon emission permits have evolved into the financial assets with investment values and liquidity. Because the "Kyoto Protocol" introduced three flexible mechanisms, i.e. the Clean Development (CDM), the Emissions Trading (ET), and the Joint Implementation (JI), main leading countries bred the greenhouse gas emissions trading market, which made the emission permits of greenhouse gas, mainly carbon dioxide, become a new commodity circulating in international capital market.(Emilie Alberola, Julien Chevallier, Benoît Chèze , 2008)

2. The characteristics of low carbon investment and financing mechanism in developed countries

2.1 The complete and smooth channels for investment and financing

The low carbon investment and financing mechanism in developed countries has one unique characteristic, i.e. the funds distribution channels are relatively smooth. Firstly, the government's funding sources for low carbon are mainly from the carbon taxes, energy taxes, and the auction of carbon quotas, ensuring that low carbon income meets low carbon expenditure. On the side of taxation, foreign countries usually impose the energy taxes and environment taxes, levying taxes for air pollution, water pollution, waste pollution, and noise pollution, what provides main funding resources for the development of low carbon economy. These taxes are the main funding resources for the government developing the low carbon economy. In countries where the mandatory emission is implemented, except for the free carbon quota, the revenue from carbon quota auction becomes another main resource for low carbon funding.

2.2 The government-led low carbon investment and financing pattern

Another prominent characteristic for developed countries developing low carbon investment and financing mechanism is the government-led pattern. Especially in the early stages of the development of low carbon economy when the low carbon projects are not profitable, only with the policy support of the government, can enterprises, financial institutions, and other economic entities participate in the low carbon industry. In a sense, the government plays an irreplaceable role in the overall low carbon investment and financing mechanism. The government is not only the important funding resource for low carbon economy, but also the institutional builder and manager of low carbon economy.

2.3 The high returns to low carbon projects are the motive for ensuring the smooth investment and financing of low carbon economy

The high returns to low carbon projects are the motive for ensuring the smooth investment and financing of low carbon economy. To obtain the economic profits from low carbon products is the first power for enterprises' production and operation. To pursue for high profits of low carbon products is the motive for enterprises reducing emissions voluntarily. It can drive high carbon enterprises to adopt low carbon technologies, update outdated equipments, improve production efficiency, and reduce emission of pollutions.

2.4 The establishment and effective operation of carbon market mechanism mark the maturity of low carbon investment and financing mechanism

Just as what was said by Murphy, Drexhage, and Wooders (2009), the purpose of designing the carbon trading market mechanism is to help all countries to achieve the objective of carbon reduction in an effective way, encouraging private institutions to contribute to carbon reduction activities.(Deborah Murphy, John Drexhage & Peter Wooders , 2009) Under the effect of carbon market mechanism, the transfer of low carbon technologies and the investment in low carbon economy happen a lot in a large scale.

3. Enlightenment for China establishing and improving the low carbon investment and financing mechanism

3.1 Create domestic demands for carbon products and stimulate capital supply for low carbon industry by the institutional design

In China, the development of low carbon economy is still facing a huge funding gap. The limited fiscal funds of government cannot meet the capital needs of low carbon economy. According to the experiences of developed countries developing low carbon investment and financing mechanism, we need to introduce the institutional innovation, stimulate the generation of needs for emission reduction among domestic economic entities, and promoting the economic entities' enthusiasm for investing in low carbon economy. Under the pressure of the government policies, economic entities that respect the contract will provide direct financial support for the development of low carbon economy. Therefore, China can create a favorable environment for low carbon investment by making up the climate changing policies and subsequent capital transfers.

3.2 Establish the government-led diversified investment and financing mechanism

The government should increase its influences in the establishment of low carbon investment and financing mechanism. In addition to the suggestion mentioned earlier in the paper that the government stimulate the generation of needs for emission reduction among producers and consumers, and encourage the capital supply for low carbon economy, the government can directly become a purchaser, encouraging the investment in low carbon industry. For example, the government can choose to buy more low carbon product in government procurement. Or, the government can directly buy the domestic carbon credits, complementing the carbon emission generated by self economic activities.

3.3 Develop and improve the national carbon market mechanism

Practical experiences in other countries have proved that the carbon market mechanism is the most effective way to reduce costs of emission reduction and collect funds. Although China has already formed regional carbon trading market, the national carbon trading platform is still in absence. China can develop and improve the carbon market system by the following procedures: carbon trading pilots -----cooperation and integration of regional carbon markets------construction of national carbon market ------link to international carbon market, through which Chinese enterprises also can strengthen more cooperation with foreign corporations, strive for the support of foreign capital.(Zou, 2013) As for the construction of national carbon market mechanism, one of key rings is to confirm the total quantity of emission reduction. Get to know the total quantity of carbon emission by the carbon trading pilots, and then distribute the carbon quota.

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